

November 14, 2024

**FINANCIAL ASSISTANCE CENTER
FINDING OF NO SIGNIFICANT IMPACT/ENVIRONMENTAL ASSESSMENT**

TO: ALL INTERESTED GOVERNMENT AGENCIES AND PUBLIC GROUPS

In accordance with procedures for environmental review found at 10 CSR 20-4.050, the department has performed our review on the proposed action below:

PROJECT INFORMATION:

Project Identification: Middle Big Creek Phase 2-WWTF

Applicant: Little Blue Valley Sewer District

Project No.: C295439-04

City: Pleasant Hill & other areas in counties

County: Jackson/Cass

State: Missouri

Total Project Amount: \$82,833,300

Total Clean Water State Revolving Fund Eligible Costs: \$82,833,300

- Potential Loan: \$82,833,300
- Potential Grant: \$0

COMMUNITY DESCRIPTION:

Location: The Little Blue Valley Sewer District (LBVSD) Middle Big Creek (MBC) Wastewater Treatment Facility (WWTF) is located in the City of Pleasant Hill, just southeast of the intersection of State Route 7 and State Route 58. New permanent flow metering structures will be added to areas of the collection system in southern Jackson County and northern Cass County. Rehabilitation of the Raintree Pump Station (RTPS) may also be conducted. A map that identifies the proposed project locations is attached at the end of this document as well as more detailed map showing the WWTF location.

Population, Present and Projected, and Design Year: The existing MBC service area population, as estimated for 2020, was 34,735. The number of connections as of June 2021 was 13,328. The projected annual average flow to the MBC WWTF in 2040 is 7.5 million gallons per day (MGD). This includes having capacity for flow that is pumped from the RTPS to the Atherton WWTP, such as during peak flow conditions.



Current Methods of Waste Treatment: The existing MBC WWTF has a design flow of 2.25 MGD and a peak daily flow capacity of 6.75 MGD. The treatment plant uses a conventional activated sludge treatment process that includes fine screening and grit removal, fine bubble diffused aeration, secondary clarification, tertiary filtration, and ultraviolet disinfection. Digested sludge from the WWTF is hauled by truck to RTPS and pumped to Atherton WWTF.

The MBC subdistrict collection system is served by three pump stations (Greenwood, Raintree, and Lake Winnebago), two force mains, and three gravity sewers. This collection system receives wastewater from numerous subdivisions and communities, including Greenwood, a portion of Lee's Summit, a portion of Raymore, Mullendike, Dikeland, Lake Winebago, and Pleasant Hill. Operational options are available for the RTPS to divert flows to the Atherton WWTF, such as during peak flow conditions.

PROJECT DESCRIPTION:

Purpose and Need: The MBC WWTF expansion is needed to treat projected future flows, which includes flow that will be directed to the MBC WWTF instead of being diverted to the Atherton WWTF through the RTPS. While the current MBC WWTF design flow is 2.25 MGD, the planned expansion is for a design flow of 7.5 MGD and the ability to treat a peak flow of 22.5 MGD. Existing storage of 37.4 million gallons (MG) at the Lake Winnebago excess flow holding basin (EFHB) and 6.3 MG at the WWTF will be supplemented by an additional 7.3 MG of storage at the WWTF to be constructed as part of this project.

Construction of permanent flow metering structures throughout the collection system will inform estimates of flow volumes and shared contributions from the member communities, which will allow the district to transition from a connection-based billing structure to a flow-based billing structure.

Rehabilitation of the RTPS is needed due to the age and condition of the pump station.

Some of the project drivers included increasing capacity to address growth within the MBC service area and improve wet weather resiliency; reducing long-term operating costs; treating within the MBC watershed and minimizing hauling and pumping to Atherton WWTP; and improving accuracy of flow allocation for member communities. Environmental considerations included regulatory drivers, such as anticipated effluent requirements for nutrients, and providing green infrastructure with sludge reed beds that eliminate truck hauling of biosolids to RTPS.

Description of Project: The MBC Phase 2 WWTF Expansion will increase the peak daily flow of the facility to a total of 22.5 MGD. This will be achieved by adding treatment trains, with an additional peak daily flow capacity of 15 MGD. Also, several unit processes in the existing train will be rerated from 6.75 MGD to 7.5 MGD. The project also includes the construction of 12 permanent flow meter structures in the collection system and rehabilitation tasks at the RTPS.

Components of the WWTF improvements include the following:

- Three new submersible pumps in the Raw Wastewater Lift Station
- New raw wastewater flow meter and vault
- A second headworks building, including two mechanical step screens and a bypass manual bar screen rack; two forced vortex grit chambers; two grit classifiers and associated grit pumps; and an electrical room

- Construction of Anaerobic Selector Basin No. 1 in the existing Phase 1 treatment train, including three submersible propeller mixers
- Adding two weir gates to the Raw Wastewater Flow Splitter Structure
- Construction of Anaerobic Selector Basin Nos. 2 and 3, including three submersible propeller mixers in each
- New Aeration Basin Nos. 2 and 3
- Modification to existing Aeration Basin No. 1, installing mooring arms in place of existing removal cables
- Two new Post Oxidation Basins
- New chemical phosphorous removal system
- New Final Clarifier flow splitter structure
- Three new Final Clarifiers, Nos. 3, 4, and 5
- A new Return Activated Sludge (RAS)/Waste Activated Sludge (WAS) Pump Station No. 2
- Tertiary filters will be expanded with two new concrete filter channels and synthetic media disk filters
- Effluent reaeration basin will be doubled in size
- New Aerobic Digester No. 3
- New pump station for thickened waste activated sludge (TWAS)
- New Sludge Reed Beds consisting of 18 cells covering approximately 5.8 acres
- New Excess Flow Holding Basin No. 2

The collection system permanent metering portion of the project will be at 12 metering structures through the collection system. Each location will have an area of site disturbance of approximately 25 feet by 50 feet, as needed to install the metering manhole structure and associated above ground metering equipment box. Each metering site will be enclosed within a fence with a gate entrance.

Rehabilitation of the RTPS will include surface blasting/preparation for coating and cementitious and epoxy lining for all wall and top slab interior surfaces. In addition, two isolation gates at the pump station that are no longer operationally useful will be removed.

Design Factors:

- Expansion of average flow from 2.25 to 7.5 MGD
- Expansion of peak wet weather flow from 6.75 to 22.5 MGD. Expansion of plant excess flow storage from 6.3 MG to 13.6 MG
- Construction of Sludge Reed Beds at the WWTF to convert sludge to a Class B biosolids suitable for land application
- Annual Average Organic load of 9,650 pounds/day of BOD₅ or a population equivalent of 56,764 (typically, 1 population equivalent = 0.17 pounds BOD₅/day)
- Designed to meet effluent limits of NPDES Permit No. MO-0058629
- Designed to meet effluent limits of Water Quality and Antidegradation Review Document (May 2022)
- Design complies with 10 CSR 20-8

Receiving Stream: The receiving stream is a tributary to Big Creek. Designated uses of Big Creek include warm water aquatic life (AQL), human health protection (HHP), irrigation (IRR), livestock and wildlife watering (LWW), secondary contact recreation (SCR), and whole body contact recreation – category B (WBC-B).

ALTERNATIVES CONSIDERED:

Regionalization and No Discharge Alternatives were presented in the Water Quality and Antidegradation Review attached to the facility plan and were determined to not be viable, due to the projected design flow of 7.5 MGD and the lack of other facilities with available capacity in the area.

Alternatives for individual components within the treatment train were evaluated, with consideration given to capital cost, operation and maintenance cost, compatibility with existing equipment, and other non-economic factors. Specific alternatives evaluated included the following:

- Fine screening alternatives – Step screen (selected); in-line band screen; drum screen
- Grit removal alternatives – Headcell; forced vortex (selected)
- Aeration basin sizing alternatives – Like sized aeration basins (selected); varying sized aeration basins
- Aeration basin aeration and mixing layout alternatives – Submersible mixers with bridge; floating mixers with mooring arms (selected)
- Aeration basin blower alternatives – Helical lobe; rotary screw; integrally geared centrifugal (selected)
- Biosolids alternatives – Continue sludge hauling to RTPS; sludge reed beds (selected)

REASONS FOR SELECTION OF PROPOSED ALTERNATIVE:

The combination of treatment components was selected to be the most cost effective, practical, and feasible method of meeting the project objectives, which were described in the Purpose and Need section.

ENVIRONMENTAL IMPACT SUMMARY:

1. Primary:

- a. Construction: Temporary surface disruption, blowing dust, and noise from vehicles and equipment will occur during construction, but LBVSD expects these impacts to be minor and temporary in nature.
- b. Environmental: The project will provide increased capacity for the wastewater treatment and disinfection at the MBC WWTF. Since more wastewater can be directed to the MBC WWTF, this will reduce the flow quantity to be pumped from the RTPS to the Atherton WWTF, thereby reducing electricity consumption for conveyance. The new sludge reed beds will allow biosolids handling without electrical or chemical requirements; it will also have a significant environmental benefit as compared with the current practice of truck hauling thickened biosolids to a transport pump station, then pumping to the Atherton WWTF where dewatering and incineration occur.

The construction of permanent flow metering structures within the collection system will inform estimates of flow volumes from member communities, which will allow the district to transition from connection-based billing structure to flow-based billing structure, while also providing operational data to the communities.

- c. Financial: Current billing structure is based on number of connections. The project includes the addition of customer sewer meters, which allows for transitioning to flow-based billing. Prior to the transition to flow-based billing, MBC will charge the below projected rates on a per connection basis to its customers (municipalities and sewer districts):

2017 – 2020:	\$32.50 per connection
FY 2021:	\$37.00 per connection
FY 2022:	\$38.00 per connection
FY 2023:	\$41.00 per connection
FY 2024:	\$44.00 per connection

The MBC customers may incorporate additional costs into their rates in processes that are outside of MBC control.

2. Secondary:

- a. Population Impacts: LBVSD anticipates no significant change in population trends resulting from this project. No significant relocation of people or structures are expected to result from this project. This project will not serve any new areas.
- b. Land Use and Trends: LBVSD anticipates no significant change in land use trends resulting from this project. LBVSD expects no development of sensitive areas.
- c. Environmental: LBVSD does not expect secondary environmental impacts caused by this project.

- 3. Mitigation Measures Necessary to Eliminate Adverse Environmental Effects: Best Management Practices and good engineering practices should minimize noise, blowing dust, and erosion normally associated with construction. LBVSD will promptly restore disturbed areas. Any debris, such as construction waste, trees, or brush, will be disposed of properly.

The Missouri Department of Conservation (MDC) Natural Heritage Review Report identified records of two state-ranked species near the project area, consisting of Long-tailed Weasel (*Mustela frenata*) and American Badger (*Taxidea taxus*). There are no regulatory requirements associated with this status; however, MDC encourages voluntary stewardship to minimize the risk of further decline that could lead to listing. A general recommendation regarding Indiana Bats (*Myotis sodalis*) and Northern Long-eared Bats (*Myotis septentrionalis*) is also provided. To minimize impacts to protected bat species, tree clearing at the metering site locations will only occur from November 1 to March 31. No tree clearing is anticipated at the WWTF.

An Approved Jurisdictional Determination from the U.S. Army Corps of Engineers determined the former lagoon on which the WWTF is being expanded is a non-regulated wetland. A Floodplain Development Permit was approved by the City of Pleasant Hill on May 8, 2024.

4. Irreversible and Irretrievable Commitment of Resources: Fuel and construction materials will be irretrievably committed to this project. Future funds will be committed to the operation and maintenance of the system.

PUBLIC PARTICIPATION:

1. Public Involvement: The LBVSD held a public meeting on April 11, 2023, at 9:30 a.m. at the Memorial Building in the City of Pleasant Hill, Missouri.
2. Public Opposition or Opinions: The public expressed no adverse opinions to the project.

COORDINATION AND DOCUMENTATION WITH OTHER AGENCIES AND SPECIAL INTEREST GROUPS:

1. Facility Plan: Facility Plan for Middle Big Creek Phase 2 Improvements dated June 8, 2022
Prepared by: HDR Engineering, Inc. and Burns & McDonnell

Environmental Information Document: Submitted June 8, 2023, with supplemental information provided August 8, 2023
Prepared by: HDR Engineering, Inc. and Burns & McDonnell

Cultural Resource Archaeological Survey Report: Dated January 2023 and submitted with Environmental Information Document
Prepared by: HDR Engineering, Inc.

2. Federal:
 - a. United States Fish and Wildlife Service (USFWS)
 - b. United States Army Corps of Engineers (USACE)
3. State:
 - a. Missouri DNR – State Historic Preservation Office
 - b. Missouri DNR – Missouri Geological Survey
 - c. Missouri DNR – Division of State Parks
 - d. Missouri Department of Conservation
 - e. Missouri Office of Administration – Federal Assistance Clearinghouse
4. Consulting Engineer: HDR Engineering, Inc.
10450 Holmes Road, Suite 600
Kansas City, MO 64131
5. In accordance with the National Historic Preservation Act Section 106, notice was given to all tribes that may attach a religious or cultural significance to historic properties in the region that may be affected by this undertaking.

Positive Environmental Effects to be Realized from the Proposed Project: The project will provide increased capacity for the wastewater treatment and disinfection at the MBC WWTF. Since more wastewater can be directed to the MBC WWTF, this will reduce the flow quantity to be pumped from the RTPS to the Atherton WWTF, thereby reducing electricity consumption for conveyance. The new sludge reed beds will allow biosolids handling without electrical or chemical requirements as well as have a significant environmental benefit as compared with the current practice of truck hauling thickened biosolids to a transport pump station, then pumping to the Atherton WWTF where dewatering and incineration occur.

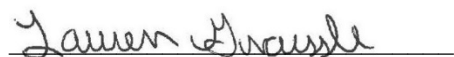
The construction of permanent flow metering structures within the collection system will inform estimates of flow volumes from member communities, which will allow the district to transition from connection-based to flow-based billing structure, while also providing operational data to the communities.

Reasons for Concluding There Will Be No Significant Impacts: The proposed project will have a positive impact on water quality and will not result in any significant adverse impacts on rare or endangered species, floodplains, wetlands, recreational areas, cultural/archaeological sites, or air quality. Population densities and land use trends will not be significantly affected. Appropriate mitigation measures will be implemented for minor impacts, which are expected to be temporal in nature.

This action is taken based on a careful review of the facility plan and supporting documentation on file in the office of the Missouri Department of Natural Resources' Financial Assistance Center at 1101 Riverside Drive, Jefferson City, MO 65101. These are available for public review upon request Monday – Friday, 8:00 a.m. to 5:00 p.m. This agency will not take any administrative action on this project for at least 30 calendar days from the date of this document. Persons wishing to comment on the above environmental decision may submit comments to the Department of Natural Resources, Financial Assistance Center, P.O. Box 176, Jefferson City, MO 65102-0176, during this period. E-mail comments will be accepted at the following address: DNR.SRFPublicNotice@dnr.mo.gov. Please include the project name and number in all comment letters. Thank you.

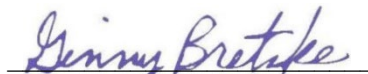
Sincerely,

FINANCIAL ASSISTANCE CENTER



Lauren Graessle, P.E.

Director



Ginny Bretzke, P.E.

Project Review Engineer

LG:gbc

November 14, 2024

Date

Attachments

DISTRIBUTION

Missouri Department of Conservation
P.O. Box 180
Jefferson City, MO 65102

Conservation Federation of Missouri
728 West Main Street
Jefferson City, MO 65101

U.S. Environmental Protection Agency
c/o Carter Tharp – WWPD/SRFB
Tharp.carter@epamail.epa.gov

Missouri Department of Natural Resources
Missouri Geological Survey
Environmental Geology Section
P.O. Box 250
Rolla, MO 65402-0250

Missouri Department of Natural Resources
Division of State Parks
State Historic Preservation Office
P.O. Box 176
Jefferson City, MO 65102-0176

U.S. Fish and Wildlife Service
Ecological Services
101 Park DeVille Drive, Suite A
Columbia, MO 65203-0057

National Park Service
Midwest Region
mwro_compliance@nps.gov

USDA Rural Development
601 Business Loop 70 West
235 Parkade Center
Columbia, MO 65203

Council of Environmental Quality
722 Jackson Place, N.W.
Washington, DC 20503

Gilmore and Bell, P.C.
c/o Shannon Walsh Creighton
One Metropolitan Square
211 North Broadway, Suite 2000
St. Louis, MO 63102-2741

SRF File C295439-04

Little Blue Valley Sewer District
c/o Jeff Shook, Executive Director
21208 East Old Atherton Road
Independence, MO 64058

Burns & McDonnell
c/o Rachelle Lowe, P.E.
9400 Ward Parkway
Kansas City, MO 64114

Missouri Department of Natural Resources
Kansas City Regional Office
200 Unity Circle North, Suite 2A
Lee's Summit, MO 64086

The Examiner
300 North Osage Street, 1st floor
Independence, MO 64050

North Cass Herald
120 Main Street
Belton, MO 64012

Tribune & Times
P.O. Box 275
Harrisonville, MO 64701

Environmental Protection Agency
Office of Federal Activities
Ariel Rios (2252A)
1200 Pennsylvania Avenue, N.W.
Washington, DC 20004

U.S. Army Corps of Engineers
Kansas City District
Kansas City Regulatory Office
601 East 12th Street
Kansas City, MO 64106

Mid-America Regional Council
600 Broadway Boulevard, Suite 200
Kansas City, MO 64105

Lewis Rice
c/o David Brown
600 Washington Avenue, Suite 2500
St. Louis, MO 63101

Apache Tribe of Oklahoma
c/o Darrin Cisco (THPO)
darrin.cisco@apachetribe.org

Delaware Nation
c/o Carissa Speck (Historic Preservation Director)
cspeck@delawarenation-nsn.gov

Iowa Tribe of Kansas and Nebraska
c/o Lance M. Foster (THPO)
lfoster@iowas.org

Iowa Tribe of Oklahoma
c/o Candace Pershall
cpershall@iowanation.org

Kaw Indian Nation of Oklahoma
c/o Emily Douglas
epadir@kawnation.gov

Miami Tribe of Oklahoma
c/o Logan York (THPO)
thpo@miamination.com

Osage Nation
c/o Dr. Andrea A. Hunter (THPO)
s106@osagenation-nsn.gov

Ottawa Tribe of Oklahoma
c/o Rhonda Hayworth (THPO)
rhonda.oto@gmail.com

Ponca Tribe of Nebraska
c/o Theresa Foley (THPO)
tfoley@poncatrib-ne.org

Ponca Tribe of Oklahoma
c/o Liana Hesler (THPO)
106notifications@ponca-nsn.gov

Sac and Fox Tribe of Missouri in Kansas and Nebraska
c/o Mark Junker
mark.junker@sacfoxenviro.org; and
amy.kahbeah@sacandfoxks.com

Sac and Fox Tribe of the Mississippi in Iowa
c/o Joan Flecksing
joan.flecksing@meskwaki-nsn.gov

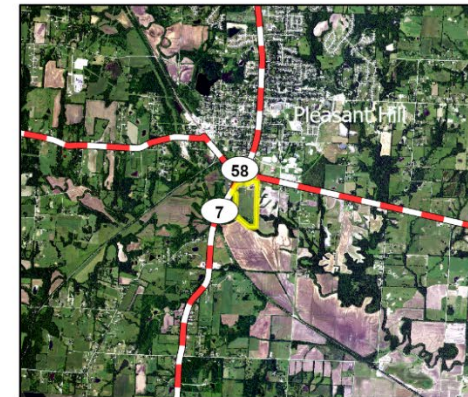
Sac and Fox Nation of Oklahoma
c/o Chris Void
chris.void@sacandfoxnation-nsn.gov

Wyandotte Nation
c/o Sherri Clemons (THPO)
sclemons@wyandotte-nation.org

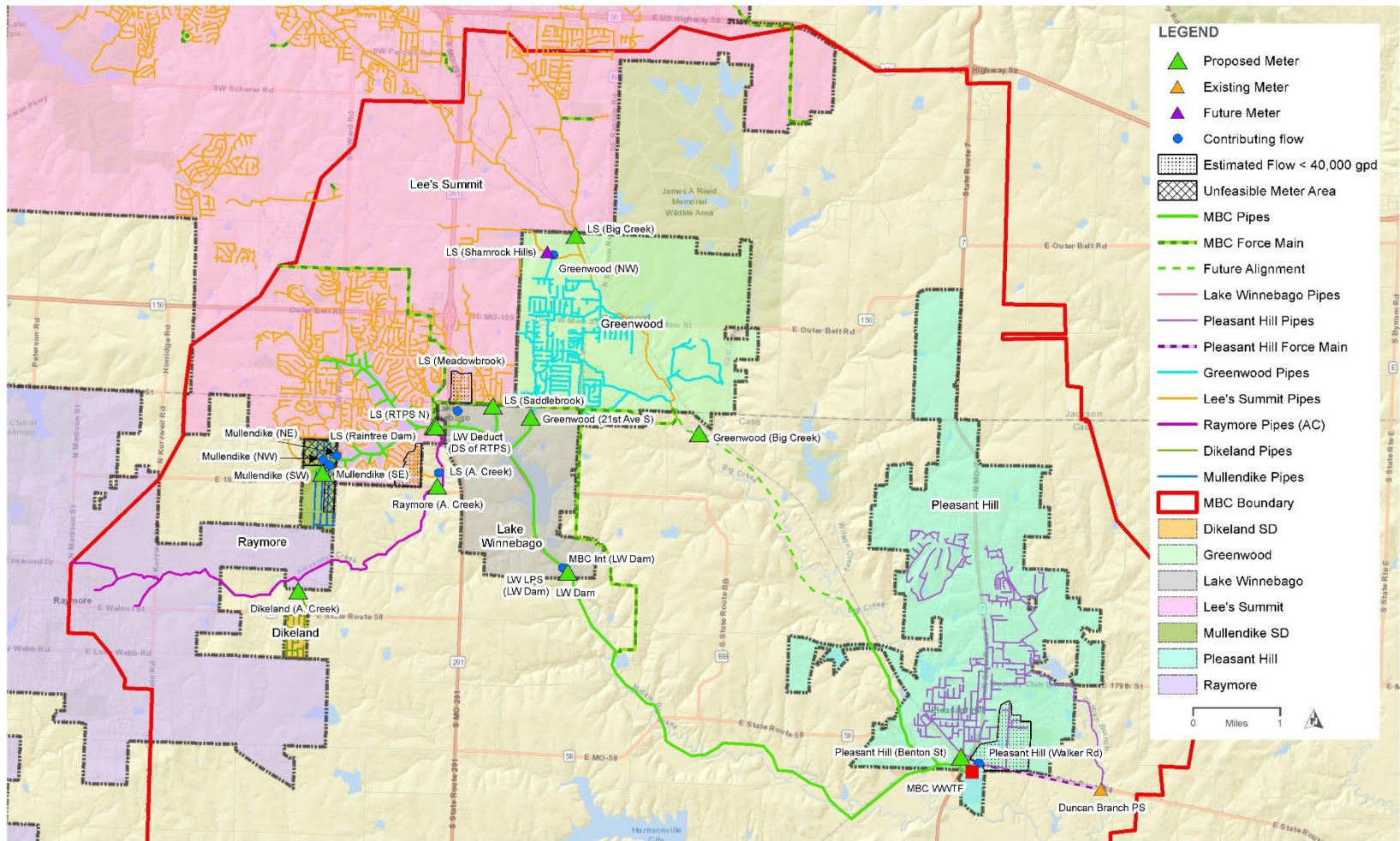


LBVSD

Middle Big Creek Phase 2 WWTF Expansion



Although data sets used to create this map have been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the department in the use of these data or related materials.



PROPOSED PERMANENT METER LOCATIONS
MIDDLE BIG CREEK PHASE 2 IMPROVEMENTS DESIGN MEMORANDUM
FIGURE 7-1